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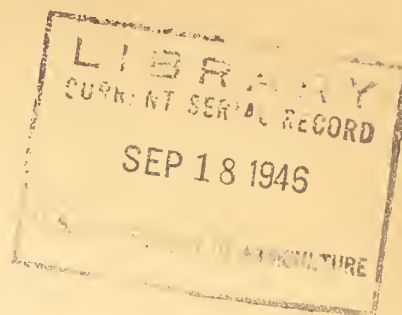
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United States Department of Agriculture  
Agricultural Research Administration  
Bureau of Animal Industry

VALUE AND USE OF RABBIT MANURE 1/

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## INTRODUCTION

The use of animal manures has long been recognized as an important means of improving the fertility of the soil and thus so obtaining maximum crop yields. The nitrogen, phosphoric acid, potash, and other chemical elements and the large number of bacteria contained in animal manures enrich the soil and the organic matter increases its moisture-holding properties.

Manures vary in composition with the kind of ration fed, the quantity of straw, bedding, soil, water, or other material contained therein, and the extent of fermentation and decay. The manures of different animals also differ greatly as shown in table 1.

TABLE 1.--Fertilizing constituents (in percentages) in different animal manures\*

Kind	Water	Nitrogen	Phosphoric acid	Potash
Horse . . . . .	59	0.70	0.25	0.77
Dairy cattle . . . . .	79	0.57	0.23	0.62
Fattening cattle . . . . .	78	0.73	0.48	0.55
Sheep . . . . .	64	1.44	0.50	1.21
Swine . . . . .	74	0.49	0.34	0.47
Chicken . . . . .	55	1.00	0.80	0.39

\* Adapted from table in Feeds and Feeding, 20th ed., page 417, by F. B. Morrison. 1937.

1/ Formerly Wildlife Leaflet 255 issued in May 1944 by the Fish and Wildlife Service, Department of the Interior.

## COMPOSITION OF RABBIT MANURE

Rabbit manure has a high nitrogen content, and when rabbits are fed a pelleted ration or one composed of recleaned grains, a good quality legume hay, and succulent green feed, the manure is relatively free of noxious weed seeds. It will not burn lawns or plants and is easy to incorporate in the soil. Hence it is satisfactory for use on gardens and lawns and about flowering plants, shrubbery, and trees.

Weather conditions in the Southwestern United States, particularly in California, differ from those in other parts of the country. Because of the extremely dry climate and the scanty rainfall manures have a low water content and retain practically all their nitrogen, phosphoric acid, and potash. Rabbits fed rations containing a good quality legume hay (alfalfa, clover, sweetclover, lespedeza, cowpea, vetch, kudzu, soybean, or peanut) and a plant protein supplement (soybean, peanut, or linseed meal) will produce a high-grade manure that, if carefully handled, will probably contain about 2 percent of nitrogen.

The results of the analyses of samples of manure from rabbits at the United States Rabbit Experiment Station that had been fed a ration composed of cereal grains, a plant protein supplement, good quality alfalfa hay, and succulent green feed are given in table 2.

TABLE 2 - Percentages of various constituents of manure of rabbits that had been feed a ration comprising cereal grains, a plant protein supplement, good quality alfalfa hay, and succulent green feed

Samples of rabbit manure	Water	Organic material	Nitrogen	Phosphoric acid	Potash
No. 1.--Clear, air-dried	4.70	92.19	2.57	1.42	0.48
No. 2.--Clear, air-dried	6.49	90.49	2.30	1.36	0.71
No. 3.--Mixed with waste, straw, alfalfa. Taken from a manure pit.	35.01	40.72	1.81	Undetermined	Undetermined

### VALUE

A test covering 13 years was conducted on a 5-acre orange grove at the United States Rabbit Experiment Station, Fontana, California, to determine the value of rabbit manure compared with chicken, hog, and steer manures as a fertilizer for citrus groves. It was found to be entirely satisfactory for that purpose, and its nitrogen-content value was the same as that of chicken, hog, and steer manures.



## QUANTITY PRODUCED

The quantity of manure produced by rabbits will vary with the size of the breed, the ages of the animals, and the kind of ration fed. A 10 to 12-pound doe and her 28 young produced in a year will yield about 6 cubic feet of clear manure in a year; a 10 to 12-pound herd buck and a dry doe will produce about 3 cubic feet of clear manure a year. When the waste bedding from the nest boxes and the waste hay and straw around the rabbitry are added to the clear manure the quantity obtained from a 10 to 12-pound doe and her four litters will be increased to 9 cubic feet and that from a herd buck or dry doe to 5 cubic feet.

The weight of a cubic foot of clear rabbit manure may vary greatly, depending on the quantity of moisture it contains. In California a cubic foot of fresh, clear manure weighs about 28 pounds, and when air dried about 16 pounds. Hence, 125 cubic feet of the air-dried would weigh a ton. In regions where there is more moisture the weight of the air-dried product would be considerably more. When the clear manure is mixed with straw and waste hay from the rabbitry and the mixture contains considerable moisture, a cubic foot may weigh 40 pounds.

## CARE AND USE

The value of rabbit manure depends on how the product is cared for and used. There will be less loss of the fertilizing elements if the material is applied directly to and immediately incorporated with the soil. When the manure is stored in piles and exposed to the weather, there will be a considerable loss in chemicals through leaching and heat. Much of this loss can be prevented if the manure is incorporated in a compost heap or put in a bin or pit. To make a compost, spread a layer, 3 to 12 inches deep, of lawn-grass cuttings, leaves, small-tree prunings, hedge trimmings, waste trimmings from garden vegetables, and weeds. Do not include diseased vegetables. Cover with a layer of rabbit manure 3 to 12 inches deep. Alternate the layers as materials become available. Tramp the compost thoroughly to exclude the air, and add just enough water to make the pile moist but not enough to cause seepage. If any smoking occurs, an indication that the mixture is becoming heated, fork over the pile, tramp it down thoroughly, and add moisture. A three- or four-inch layer of soil on top of the heap will help conserve the nitrogen and control odors. A small quantity of superphosphate or gypsum will increase the fertilizing value and act as a fly repellent. A cover will prevent leaching.

Rabbit manure is a valuable fertilizer and should be properly cared for and used, especially at the present time, as nitrogen is an important fertilizing agent that is becoming increasingly difficult to obtain. Rabbit manure is excellent for the Victory garden.

## FOR PRODUCING GREEN FEED FOR RABBITS

A large number of rabbit breeders living in city and urban areas may find it difficult to supply their rabbits with green feed. A small plot of ground heavily fertilized with rabbit manure and planted to a crop that can be cut back and will grow up again during the growing season will furnish a large quantity of green feed that, when properly fed to rabbits, will aid in keeping them in sound physical condition and will reduce materially the quantity of feed that otherwise would have to be purchased. Sudan grass which is well

adapted to many parts of the United States makes an excellent crop for this purpose. The grass can be cut and fed when it has reached a height of 8 to 10 inches, and it will grow throughout the season. This grass should not be fed after it has been damaged by frost, however, for in that condition it is harmful. Rabbit breeders living in areas where Sudan grass is not available or who are interested in other suitable crops that may be cut back repeatedly during the growing season should consult the Agricultural Extension Agent in their section.